

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LAHONTAN REGION**

**AMENDED CLEANUP AND ABATEMENT ORDER NO. 6-98-42A2  
WDID NO. 6A099806N01**

**REQUIRING  
MR. THOMAS ERICKSON AND MS. SAMINA NAZ TO  
CLEANUP AND ABATE THE EFFECTS OF THE DISCHARGE OF  
PETROLEUM PRODUCTS TO THE GROUND WATERS OF THE  
LAKE TAHOE HYDROLOGIC UNIT AT  
TAHOE TOM'S GAS STATION  
LOCATED AT  
4029 LAKE TAHOE BOULEVARD IN SOUTH LAKE TAHOE**

\_\_\_\_\_El Dorado County\_\_\_\_\_

The California Regional Water Quality Control Board, Lahontan Region (Regional Board), finds:

1. The Regional Board Executive Officer issued Cleanup and Abatement Order (CAO) No. 6-98-42A1 on April 20, 1999. The Order required Thomas Erickson and Samina Naz (hereinafter referred to as the Dischargers) to clean up and abate the effects of petroleum products discharged from an underground storage tank system to the ground waters of the Lake Tahoe Hydrologic Unit at the Tahoe Tom's Gas Station at 4029 Lake Tahoe Boulevard in South Lake Tahoe. The Order required the Dischargers to conduct the following tasks: remove free product on ground water; determine whether new releases were ongoing; install guard monitoring wells; sample monitoring wells and nearby drinking water wells on a monthly basis; contain the off-site plume from migrating; define the boundaries of contamination in soil and groundwater; implement soil and ground water remediation; and submit monthly status reports. Contamination from the site threatens six drinking water wells in the area.
2. Between April 20 and June 20, 1999, the Dischargers complied with directives in CAO No. 6-98-42A1. After which, they exceeded the maximum reimbursement amount from the Underground Storage Tank Cleanup Fund (USTCF) and ceased work at the site.
3. In July 1999, the Regional Board took over corrective actions at the site under the Emergency, Abandoned, and Recalcitrant (EAR) program. Consultants contracted by the Regional Board resumed operating the air sparge/soil vapor extraction (AS/SVE) system and the pump and treat system. Pumping tests and pilot tests were conducted to evaluate the area of influence of the remediation systems. Site investigations were implemented to delineate the extent of contamination in soil and groundwater. Guard monitoring wells were installed to warn against potential plume migration to area drinking water wells. Groundwater samples were collected and monthly monitoring reports were prepared.

4. The Regional Board's consultant prepared a March 31, 2000 report called, *Tahoe Tom's Remediation and Investigation Project, Onsite Source Soil Remediation, Technical Memorandum #1*. The report stated that an investigation determined the northern ground water plume extent was not defined towards La Salle Street. The report recommended installing additional monitoring wells to evaluate the apparent diving plume and threat to downgradient drinking water wells. The report also recommended dewatering the site and expanding SVE as the most feasible and cost effective option for removing petroleum in soil.
5. The Dischargers resumed corrective actions at the Tahoe Tom's Gas Station on June 7, 2000, after being made eligible for reimbursement by USTCF for a second release identified in 1998.
6. Some corrective actions listed CAO No. 6-98-42A1 were not completed. This amended Order contains a revised compliance schedule for implementing outstanding corrective actions in CAO No. 6-98-42A1: completely defining the boundaries of contamination at the site, submitting a final plan and construction schedule for dewatering the site and expanding SVE, and restoring ground water quality to background levels in a timely manner. The amended Order also modifies the frequency for monitoring and reporting requirements in CAO No. 6-98-42A1.
7. This enforcement action is being taken by this regulatory agency to enforce the provisions of the California Water Code and as such is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000 et. seq.) in accordance with Section 15321, Chapter 3, Title 14, of the California Code of Regulation.

**THEREFORE, IT IS HEREBY ORDERED** that pursuant to California Water Code Sections 13267 and 13304, the Dischargers shall:

**1. Continue Hydraulic Containment.**

Upon issuance of this Order, the Dischargers shall continue operating the pump and treat system at the gas station to maintain hydraulic containment of the dissolved petroleum plume on the western and southern boundaries. The system may be shut down for routine maintenance and carbon change-outs without Board staff authorization for no more than 10% of the time, determined on a monthly basis. Board staff concurrence is required for system shutdown periods of greater than 10% , such as for expanding the system or conducting pump tests. Hydraulic containment is defined as having no further migration or expansion of the dissolved petroleum plume to locations having non-detectable levels of dissolved petroleum hydrocarbons.

**2. Identify the Complete Extent of Contamination.**

The Dischargers shall conduct further site investigations to completely define the boundaries of contamination in soil and groundwater.

- 2.1. **By September 30, 2000,** implement the June 28, 2000 *Workplan for Monitoring Wells Installation and Borehole Drilling*, to define the extent of soil and ground water contamination from the gas station.
- 2.2. **By December 8, 2000,** submit a technical report to the Regional Board that defines the full horizontal and vertical extent of soil and groundwater contamination from the gas station. The report shall focus on the northern plume boundary and the extent of soil contamination that were not delineated. At a minimum the report shall:
  - 2.2.1. Provide a narrative description of work performed and information provided.
  - 2.2.2. Include boring logs, monitoring well designs, survey plat, and analytical data.
  - 2.2.3. Include color-coded site maps showing the location of all monitoring wells, drinking water wells, and soil borings. Show boundary lines of petroleum contamination in soil out to 5 micrograms per kilogram ( $\mu\text{g/kg}$ ) for MTBE and 500  $\mu\text{g/kg}$  for Total Petroleum Hydrocarbons as gasoline (TPH-g) in all directions. Show boundary lines of petroleum contamination in groundwater out to 0.5 micrograms per liter ( $\mu\text{g/l}$ ) for MTBE and 50  $\mu\text{g/l}$  for TPH-g in all directions.
  - 2.2.4. Include color-coded geologic cross-sections that show the depth to ground water and the vertical extent of petroleum contamination in soil and groundwater out to the levels listed in Order No. 2.2.3.
  - 2.2.5. Describe whether or not the plume is following preferential pathways and the basis for that conclusion.
  - 2.2.6. Evaluate whether the SVE system influences the complete horizontal and vertical extent of soil contamination.
  - 2.2.7. Analyze whether the groundwater pump and treat system is adequate to hydraulically contain the horizontal and vertical extent of contaminants in the saturated zone and prevent impacts to receptors (e.g., pumping drinking water wells).

### 3. Remove the Source of Contamination

The Dischargers shall take all practicable actions necessary to remove all contamination that is continuing to leach to groundwater. As a part of this effort, Dischargers shall complete the following actions.

#### 3.1. Source Remediation.

Upon issuance of this Order, the Dischargers shall continue operating the SVE system at the gas station at no less than the minimum design rate of 300 standard cubic feet per minute (scfm), as monitored at the inlet to the system blower. The system may be shut down for routine maintenance and carbon change outs without Board staff authorization for no more than 10% of the time, determined on a monthly basis. More than 10% downtime requires Board staff concurrence, such as when conducting pilot tests or expanding the system.

#### 3.2. Expand Source Remediation.

The Dischargers shall take all practicable actions necessary to promptly remove petroleum contamination in the unsaturated zone, the saturated zone, and the capillary fringe that is continuing to leach to groundwater (collectively, "source contamination"). As a part of this effort, the Dischargers shall implement the dewatering and expanded SVE alternative proposed in the March 31, 2000 document "Technical Memorandum #1," or implement another method if approved by Regional Board staff that can meet the deadlines below.

### **3.2.1. Final Design for Soil Remediation.**

**By September 29, 2000**, submit a final design and construction schedule for implementing the dewatering and expanded SVE alternative at all areas having soil contamination greater than ( $>$ ) 10  $\mu\text{g/kg}$  as MTBE,  $>10 \mu\text{g/kg}$  as BTEX, or  $>100 \mu\text{g/kg}$  as TPH-g. Include a monitoring proposal for evaluating the progress of dewatering the site to 25 feet below ground surface (bgs). The proposal shall cite a monitoring frequency and list wells that will be used for monitoring water elevations.

### **3.2.2 Conduct Source Remediation.**

**By December 29, 2000**, begin operating the dewatering and expanded SVE alternative for cleanup of source contamination at the design rate or capacity approved by Board staff. This action includes achieving the goal for dewatering the site to at least 25 feet bgs within 60 days to expose to vapor extraction all areas having soil contamination.

### **3.2.3 Biweekly Status Letters.**

**Beginning January 15, 2001**, submit status letters every two weeks to the Regional Board describing the operation of the dewatering and expanded SVE alternative and the progress towards achieving the dewatering goal to 25 feet bgs. Describe current pumping rates, vapor extraction rates, volume of water pumped, and water elevations per the approved monitoring program. Discuss any problems that may exist. List proposed corrective actions planned for the next two weeks.

### **3.2.4. Source Remediation Report.**

**By March 15, 2001**, submit a technical report to the Regional Board containing as-built designs for all aspects of the dewatering and expanded SVE alternative.

3.2.4.1. Describe all actions taken to implement the systems and report all data collected and laboratory analyses of samples.

- 3.2.4.2. Provide color-coded figures that include flow lines, potentiometric surfaces and capture zones using the actual pump rate of the extraction well network.
- 3.2.4.3. State whether the systems are operating as designed and provide data and information to support the conclusion.
- 3.2.4.4. If one or both systems are not operating as designed and remedial goals have not been met, describe corrective actions necessary to achieve design operation. Implement proposed corrective actions within 14 days of submitting the technical report, unless Board staff does not concur with the proposal.
- 3.2.4.5. Include a log that shows all system shutdowns, and report the cause(s).

#### **4. Conduct Monitoring and Reporting.**

The Dischargers shall conduct monitoring and reporting actions as specified below.

##### **4.1. SVE Sampling.**

Collect information regarding operation of the SVE system, such as flow rates, temperatures, and pressure readings, at all well locations. Record the oxidizer influent flow rate on a continuous basis. Obtain the combined well flow rate from all operating extraction wells. Install instrumentation and sampling ports as necessary to collect the required information. Collect vapor samples as required by the County permit. Include MTBE analysis in all samples.

##### **4.2. Groundwater Sampling.**

- 4.2.1. **Beginning September 30, 2000 and monthly thereafter**, collect water samples from the following monitoring and extraction wells: MW-2A, -3R, -4, -6, -8R, -10, -11M, -11D, -16M and RW-1, -2, -3, and -4. Analyze all water samples for the following constituents: TPH-g; BTEX; and gasoline oxygenates including TBA, MTBE, DIPE, ETBE, TAME and ethanol. Conduct analyses for BTEX and gasoline oxygenates by Method 8260 or its equivalent. Achieve detection limits of 0.5 µg/l for BTEX and all oxygenates except TBA and ethanol. Achieve detection limits of 5 µg/l for TBA and 50 µg/l for ethanol.
- 4.2.2. **Beginning September 30, 2000 and bimonthly thereafter**, collect water samples from the following monitoring, extraction, and guard wells: MW-1, -3D, -5, -7, -9, -10M, -10D, -11, -12, -13, -14, -15, -15D, -16, -16D, -17, -17M, -17D, BR-S, BR-D, SH-S, SH-D, LM-D, and Shan1. Also collect water samples from the following drinking water wells: Mark Twain Motel, Station House Inn, Alpen Rose Inn, Lakeside Water Mutual Company, and STPUD Blackrock #2. Analyze all water samples for the following constituents: TPH-g; BTEX; and gasoline oxygenates including TBA, MTBE, DIPE, ETBE, TAME and ethanol. Conduct analyses for BTEX and gasoline oxygenates by Method 8260 or its equivalent. Achieve detection limits of 0.5 µg/l for BTEX

and all oxygenates except TBA and ethanol. Achieve detection limits of 5 µg/l for TBA and 50 µg/l for ethanol.

#### **4.3. Bimonthly Monitoring and Remediation Status Reports.**

**Beginning November 15, 2000 and by the 15<sup>th</sup> of every other month thereafter,** include at a minimum the following information in monitoring and remediation status reports:

- 4.3.1. A narrative description and analysis of all information provided.
- 4.3.2. Calculation of vertical and horizontal hydraulic gradient.
- 4.3.3. Potentiometric surface maps for ground water elevation in shallow and deep monitoring wells. All new wells that were sampled must be surveyed by a California licensed surveyor.
- 4.3.4. Color coded site maps showing the location of all monitoring wells, guard wells, remediation system wells, and drinking water wells within 1,500 feet of the Tahoe Tom's Gas Station. Show the ground water flow direction, and the boundary lines of the dissolved petroleum plume out to 0.5 µg/l MTBE and 50 µg/l TPH.
- 4.3.5. Tables and graphs showing the volume of groundwater and hydrocarbons extracted and the mass of TPH and MTBE removed.
- 4.3.6. Remediation system(s) downtime, cause of such downtime, and the steps taken to avoid such downtime in the future.
- 4.3.7. Summary of data collected regarding operation of the SVE system, including information required by the El Dorado Air Pollution Control District. Present all vapor flow rates in scfm (standard cubic feet per minute).
- 4.3.8. An overall evaluation of the groundwater extraction and SVE system effectiveness. Discuss progress towards meeting remediation objectives outlined in Order Nos. 1 and 3.
- 4.3.9. Discussion of whether the dissolved petroleum plume has stopped migrating, whether gasoline constituents in ground water are reducing in concentration, and the amount of soil remediation occurring. Describe the basis for all conclusions.
- 4.3.10. Identification of remedial actions planned for the next reporting period. Discuss steps to be taken to optimize mass removal of hydrocarbons utilizing the SVE system. Implement the remedial actions **within 14 days**, unless notified not to by Regional Board staff.

#### **5. Conduct Final Remedial Action for Aquifer Restoration.**

The Dischargers shall restore the aquifer to background conditions. To achieve this goal, the Dischargers shall take all necessary steps to design, construct, and begin operation of a remedial system to restore contaminated groundwater at all monitoring locations to background concentrations in accordance with State Water Resources Control Board (SWRCB) Resolution No. 68-16. Background concentrations at the site are less than the following: 50 µg/l TPH, 0.5 µg/l MTBE, 0.5 µg/l BTEX, 5 µg/l TBA, and 50 µg/l ethanol. These cleanup levels shall remain in effect unless the Dischargers can demonstrate the levels

can not be met. In the latter instance, the Dischargers may propose alternate cleanup levels, as described in SWRCB Resolution No. 92-49, that (1) are consistent with maximum benefit to the people of the state, (2) do not unreasonably affect present and anticipated beneficial use of the water, and (3) do not result in water quality less than prescribed in the Water Quality Control Plan and Policies adopted by the State and Regional Boards. As part of this effort, the Dischargers shall conduct the following actions:

**5.1. Final Remedy Proposal.**

By **April 30, 2001**, submit a plan with remediation options and estimated cleanup times for achieving the objectives set forth in Order No. 5. Recommend a preferred option for implementation and state the reason for the recommended option. Describe the necessary equipment, materials and methods, design schematics, and permits required to implement the plan. Include a performance monitoring plan and an operations and maintenance plan. Provide a projected timeline for aquifer restoration required in Order No. 5.

**5.2. Final Remedy Implementation.**

By **June 30, 2001**, following approval of Regional Board staff (either orally or in writing), install and begin operation the remediation system detailed in the design produced by Order No. 5.1., and in accordance with any Board-directed modifications.

Failure to comply with the terms or conditions of this Order will result in additional enforcement action which may include the imposition of administrative civil liability pursuant to Sections 13268 and 13350 of the California Water Code or referral to the Attorney General of the State of California for such legal action as he or she may deem appropriate.

Ordered by: \_\_\_\_\_ Dated: September 19, 2000  
HAROLD J. SINGER  
EXECUTIVE OFFICER